REMARKS

I. PENDING CLAIMS

Claims 1-39 are pending in this application. Claims 13-24, 32, 33, and 37-39 are withdrawn from consideration as directed to a non-elected invention.

II. AMENDMENT TO ABSTRACT AND TITLE

Applicant has amended the Title of the invention and the Abstract of the Disclosure to more closely comply with the Examiner's suggestions in paragraphs 1 and 2 of the Office action. Accordingly, any objections made in these paragraphs are moot.

III. OBVIOUSNESS REJECTION OVER GIGL ET AL.

In paragraphs 3 and 4 of the Office action, the Examiner has rejected claims 1-12, 25-31, and 34-36 as obvious under 35 U.S.C. § 103(a) over Gigl et al. (U.S. Patent No. 4,738,689). Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

The Examiner appears to agree that the material produced by Gigl et al. is a porous polycrystalline mass that has been coated with metal to reduce its susceptibility to oxidation. The existence of interconnected porosity is the very essence of the invention of Gigl et al. For instance, at column 3, lines 14-24, Gigl et al. state:

> Unexpectedly, it was a discovery of the present invention that the state of subdivision of the diamond was an important consideration in assessing diamond oxidation. That is, while it would have been expected that a polycrystalline mass would behave in a manner like that of an equivalent weight single crystal diamond, with respect to diamond oxidation, it was discovered that the porous polycrystalline mass exhibited oxidation characteristics more typical of very small

> single crystals. This is theorized to occur, in part, due to the rough surface and connected porosity of the porous mass.

In effect, Gigl et al. are stating that porous polycrystalline materials are peculiar and unexpected, at least from the standpoint of oxidation characteristics. Yet, the Examiner persists in asserting that it is somehow Applicant's burden to establish that the material produced by the process recited in his claims, which do not recite that the diamond component is porous polycrystalline material, is somehow different. Applicant respectfully submits that it is the Examiner's burden in establishing a *prima facie* case of obviousness to show that it would have been obvious to apply the techniques disclosed in Gigl et al. to non-porous polycrystalline materials, and not Applicant's burden to prove the negative suggested by the Examiner. Nothing in Applicant's specification or claims indicates that the diamond material used in preparing brazeable metallizations is, or could be, a compact having the type of interconnected pores required by the Gigl et al. disclosure.

The Examiner has dismissed Applicant's assertions as "mere speculation without any factual evidence." However, the uses disclosed for the diamond compact of Gigl et al. and the brazeable metallized diamond component of the claims are fundamentally different. The Gigl et al. compact is to be used to provide an abrasive surface on cutting tools. The brazeable multilayered material of Applicant's claims is used as a component of electronics packages, for example, as a brazeable heat spreading substrate. It therefore seems more reasonable to assume that, in light of these very different uses, the diamond components are different, rather than to assume that they are the same.

Moreover, contrary to the Examiner's assertions, it is not necessary for Applicant to recite some limitation for use in the microelectronics industry; the claims specify that the material is brazeable. Nothing in Gigl et al. or in the Examiner's interpretation of Gigl et al. supports the view that the Gigl et al. material is brazeable. To the contrary, Gigl et al. is concerned with oxidation resistance, not brazeability. In fact, Gigl et al. disclose that ceramic and metal coatings are equivalent, and may both be used in providing oxidation resistance. See column 5, lines 33-38. There is therefore no motivation in Gigl et al. to provide the multilayered brazeable structure recited in Applicant's claims.

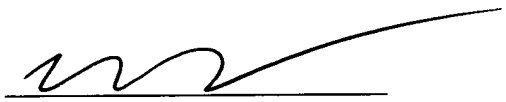
Even assuming, *arguendo*, that one of ordinary skill in the art would somehow have been motivated to prepare such a structure, the Examiner has pointed to no motivation for selecting the particular types of metals that would provide a brazeable coating that provides sufficient adherence to diamond. In the only example given of multiple coatings, Gigl et al. described an inner layer of refractory metal like tungsten or zirconium, and an outer layer of "other conventional metal," presumably meaning metals like nickel, iron, cobalt, vanadium, and the like. Nowhere does Gigl et al. recognize the need to use a first layer of chromium to provide adherence between the diamond substrate and the refractory metal layer; to the contrary, Gigl et al. implies that any reaction between the diamond and the metal coating is undesirable in that it is to be "tolerated," as long as the properties of the diamond were not adversely affected. See column 5, lines 41-46. Gigl et al. also fails to teach or suggest the need to provide two outer layers of brazeable metal, such as gold, silver, or copper. Yet, these layers are recited by Applicant's claimed method.

Finally, Gigl et al. fails to suggest depositing a second outer layer of metal onto a first outer layer of metal at a temperature at which the metals bond to each other. Gigl et al. fail to recognize that following the procedure recited by Applicant allows the preparation of a much thicker brazeable metal layer without delamination, contrary to the expectations of the art. Because this surprising result is unexpected and is not even hinted at in Gigl et al., it is further evidence of the nonobviousne nature of the claimed invention.

Applicant respectfully submits that the claims are in condition for immediate allowance, and an early notification to that effect is earnestly solicited.

The Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Order Account No. 11-0855.

Respectfully submitted,



Bruce D. Gray
Reg. No. 35, 799

KILPATRICK STOCKTON LLP
Suite 2800, 1100 Peachtree Street
Atlanta, Georgia 30309-4530
(404) 815-6218